

BONDING AND LEWIS DIAGRAMS

There are two basic types of compounds: **IONIC** and **COVALENT**.

IONIC COMPOUNDS

When atoms gain or lose electrons, they become electrically charged particles called **ions**. An ionic compound contains a positive ion (usually a metal) and a negative ion (usually a non-metal). In ionic bonding, one or more electrons transfer from each atom of the metal to each atom of the non-metal. The metal atoms lose electrons, forming **cations**.

For example, Aluminum forms a 3+ cation as a result of losing three electrons. Some metals are **multivalent** and can form ions in several ways, depending the chemical reaction they undergo. For example, iron is multivalent because it can lose two or three electrons to become a Fe^{2+} or Fe^{3+} ion.

The non-metal atoms gain electrons forming **anions**. Chlorine gains one electron and forms a 1- anion.

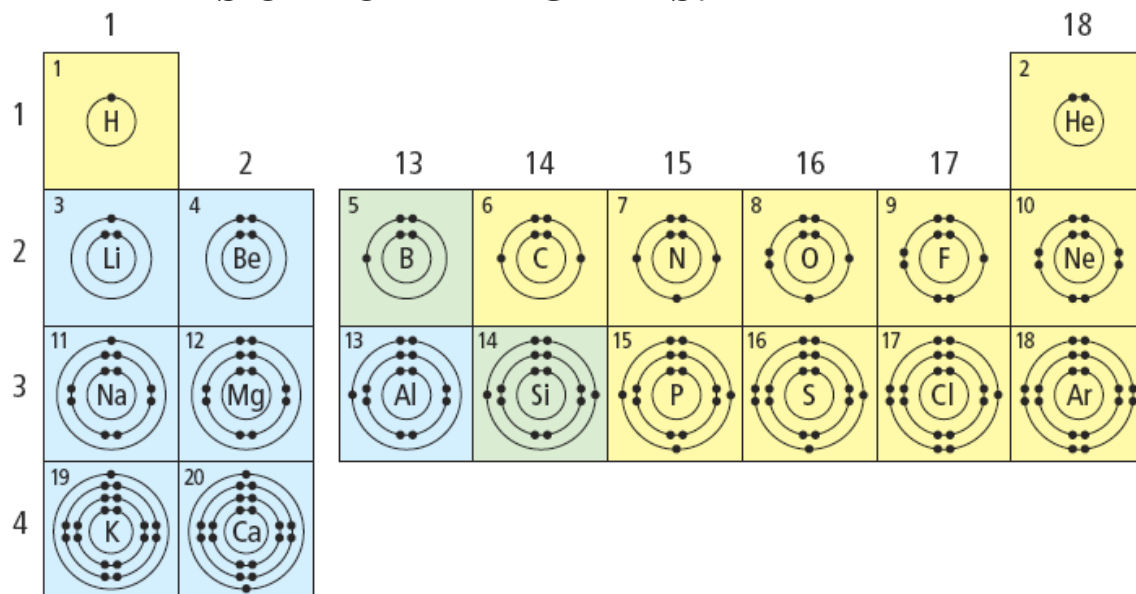
COVALENT COMPOUNDS

In covalent bonding, the atoms of a non-metal **share** electrons with other non-metal atoms. An unpaired electron from each atom will pair together, forming a covalent bond. These two electrons are sometimes called a **bonding pair**.

LEWIS DIAGRAMS

Similar to a Bohr Diagram, a **LEWIS DIAGRAM** can also be used to represent elements, ions and compounds. A Lewis Diagram however, **only shows an atom's valence electrons and its chemical symbol**.

EXAMPLES OF BOHR DIAGRAMS:



EXAMPLES OF LEWIS DIAGRAMS:

